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January 30, 2024

VIA ELECTRONIC FILING

Karen Folan, Courtroom Clerk
John Joseph Moakley United States Courthouse
1 Courthouse Way
Boston, MA 02110

Re: SharkNinja Operating LLC and SharkNinja Sales Company v. Dyson, Inc. and Dyson Technology Limited, Civil Action No. 1:23-cv-11277-ADB

Dear Ms. Folan:

Per the Procedural Schedule, Local Rule 16.6(e)(6), and this Court's Order Granting the Joint Motion for Clarification of the Scheduling Order (Docket No. 115), Defendants and Counterclaim Plaintiffs Dyson, Inc. and Dyson Technology Limited (collectively, "Dyson") respectfully present to the Court Dyson's tutorial regarding the technology covered by the asserted patent in this matter, U.S. Patent No. 11,044,979. Dyson's technology tutorial contains animations and a voice track and has been prepared in video and PowerPoint formats. See L.R. 16.6(e)(6). A PDF version of Dyson's technical tutorial is attached to this letter.

Dyson's counsel will hand-deliver these files on a DVDs to the courthouse today. Dyson's counsel will also serve electronic copies of these files on counsel for Plaintiffs and Counterclaim Defendants SharkNinja Operating LLC and SharkNinja Sales Company (collectively, "SharkNinja").

Sincerely,

A handwritten signature in blue ink, appearing to read 'Michael Strapp', with a stylized flourish at the end.

Michael Strapp

CERTIFICATE OF SERVICE

I hereby certify that this document filed through the ECF system will be sent electronically to the registered participants as identified on the Notice of Electronic Filing (NEF) and paper copies will be sent to those indicated as non-registered participants on January 30, 2024

/s/ Michael Strapp

Michael Strapp

ATTACHMENT



***SharkNinja Operating LLC and
SharkNinja Sales Company
v.
Dyson, Inc. and
Dyson Technology Limited***

Dyson's Technology Tutorial
C.A. No. 1:23-cv-11277-ADB
January 30, 2024

C.A. No. 1:23-cv-11277-ADB

Dyson Incorporated and Dyson Technology Limited respectfully submit the following technology tutorial. Although Dyson is the nominal defendant in this case, the sole patent at issue is Dyson's U.S. Patent Number 11,044,979, which discloses and claims an innovative hair styling tool.

Conventional Hair Styling Tools

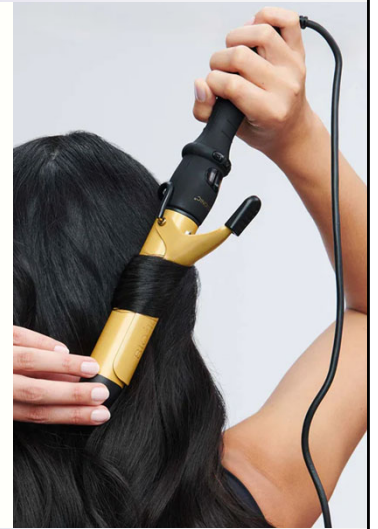
Flat Iron/Plates



<https://studio312salon.com/blog/what-is-the-best-flat-iron>



Curling Irons/Wands



<https://bioionic.com/products/goldpro-curling-iron>

Hair styling refers to the methods used to arrange hair into a new look, in which the styled hair looks different from the same hair in its previous form. Many tools exist in the art to style hair. For example, conventional styling methods use hot plates or irons; or, alternatively, a curling iron with a clip to hold the hair in place while the user rotates the tool and wraps the hair manually around the barrel.

Conventional Hair Styling Tools – Excessive Heat



<https://www.dyson.com/campaigns/hair-science#type>

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Hair is prone to damage from excessive heat, as excessive heat changes the shape of the keratin in hair strands, making the hair weaker and less elastic. Despite consumer marketing campaigns to the contrary, there is no treatment that can reverse this type of damage; the only solution is to avoid damaging the hair in the first place.

In addition, if conventional irons or hot plates are used to style wet hair, the moisture in the wet hair will turn to steam, which can damage the hair and lead to breakage and split ends. Therefore, both hot plates and irons require drying the hair before styling.

Conventional Hair Styling Tools – Excessive Heat

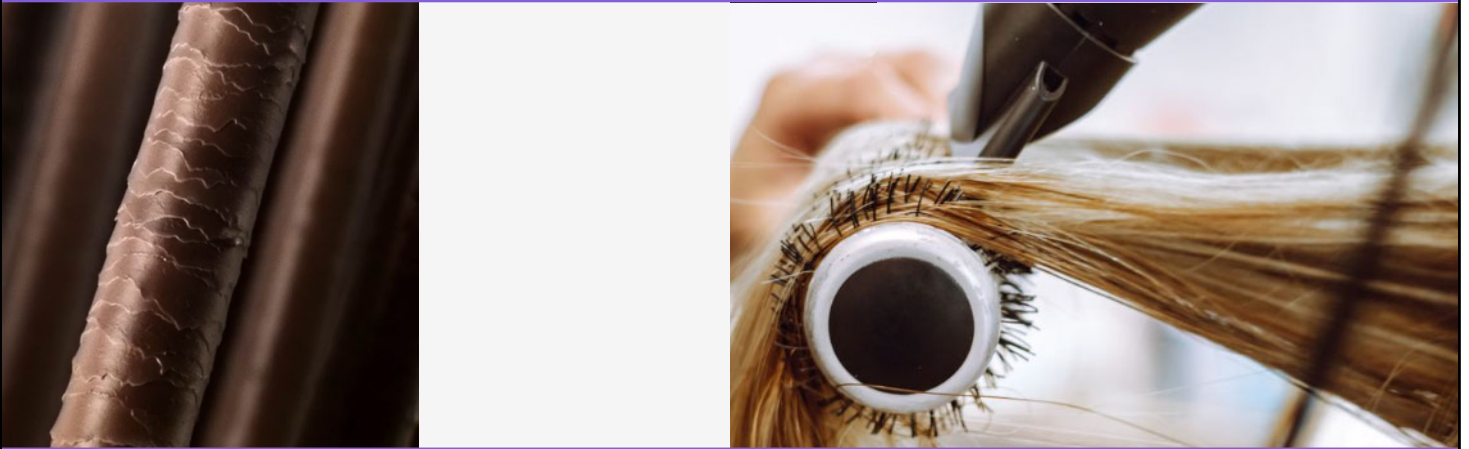


https://www.youtube.com/watch?v=uQVo1djX_xE&ab_channel=JustOneMoreThing at 0:59-1:12

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Hair can also be damaged by the heat involved in conventional hair styling techniques, even if dry. With consumer products, these concerns are real. For example, a well-known online video demonstrates the ill-effects of styling with too much heat—hair can be damaged so badly that it is burned clean off.

Conventional Hair Styling Tools – Mechanical Damage



<https://www.insider.com/how-to-blow-dry-your-hair-2018-11>

<https://www.harpersbazaar.com/beauty/hair/g44871506/best-hair-tools/>

It is also well known that the use of abrasive physical tools can damage hair, such as by hurting the shiny outer layer of the hair known as the “cuticle.” For example, combing through hair with sharp bristles or with excessive force can roughen cuticles and cause strand friction. This type of damage is known as “mechanical damage.”

Conventional Hair Styling Tools – Usability Problems



<https://www.byrdie.com/round-brush-secret>

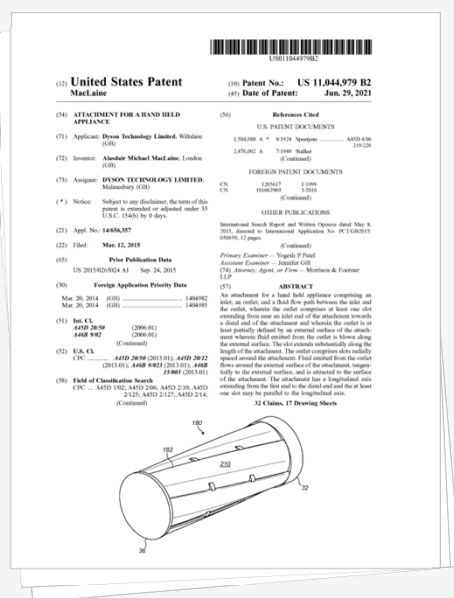
<https://www.drybar.com/how-to/videos/brush-technique/>
at 0:55-1:25

<https://peterlouis.com/ja/products/copy-of-bombshell-ionic-ceramic-tourmaline-brush-three-variations-choose-your-size>

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Conventional tools also present usability problems, particularly when consumers style their own hair. For example, a typical method of styling involves using a round brush in conjunction with a blow dryer to dry and style hair. This technique generally requires consumers to wield heavy tools with both hands, which can be both difficult to master as well as tiring. In addition, consumers may not be able to see what is happening behind their own head, and they may not be able to achieve the same angles and tension as a professional stylist. And, while professional stylists are adept at using these tools, a typical consumer can only visit a stylist occasionally.

U.S. Patent Number 11,044,979



Patent No.: US 11,044,979 B2
Date of Patent: Jun. 29, 2021

ATTACHMENT FOR A HAND HELD APPLIANCE

Assignee: **DYSON TECHNOLOGY LIMITED,**
Malmesbury (GB)

(30) Foreign Application Priority Data

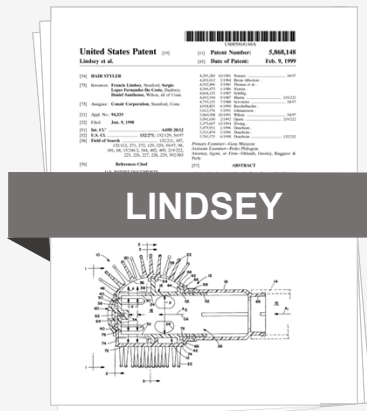
Mar. 20, 2014	(GB)	1404982
Mar. 20, 2014	(GB)	1404985

Dyson's U.S. Patent Number 11,044,979 sets out to solve these and other problems with conventional hair styling tools. The patent issued on June 29, 2021 and claims priority to two British applications filed on March 20, 2014. It is entitled "Attachment for a Hand Held Appliance," and it discloses and claims a completely new device for drying, styling and curling hair, without the need for excessive heat or excessive force, and without many of the usability concerns that plague earlier devices.

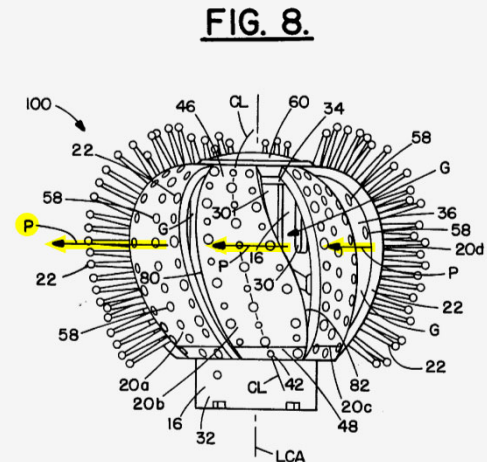
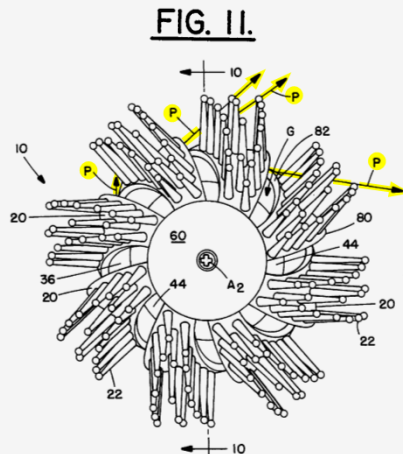
Prior Art

References Cited

5,868,148 A * 2/1999 Lindsey A45D 20/122
132/129



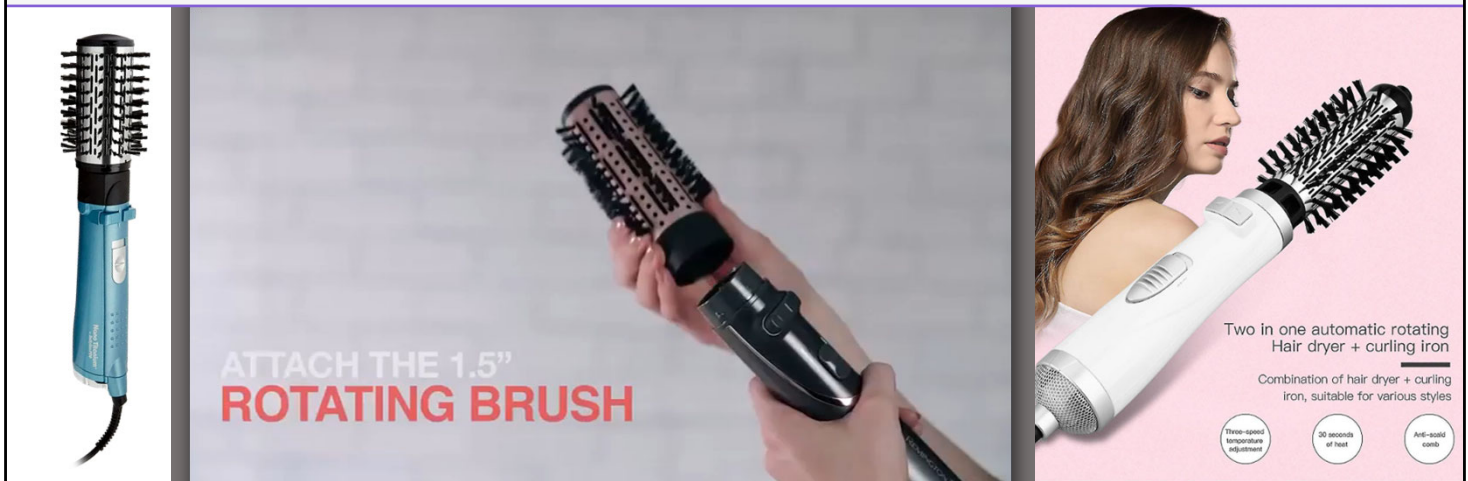
Lindsey (US 5,868,148) at Figs. 8, 11



As stated in the background of the invention, conventional hot styling brushes and tools existed in the art. One such tool was the Lindsey reference. Tools like Lindsey, which was commercialized in the United States by ConAir, blew heated or unheated air through a brush with bristles (in this case, a ball shaped brush). But the air was blown out and away from the surface of the brush.

Such a conventional hot styling brush has a number of drawbacks. For example, the user may need to manually twist the hair around the brush using their wrist, which can be difficult or tiring. As another example, hair can become tangled in the bristles.

Prior Art



<https://www.walmart.com/ip/BaByliss-Titanium-2-Rotating-Hot-Air-Hair-Brush-with-Ionic-Anti-Static-and-Far-Infrared-Heat/442727955>

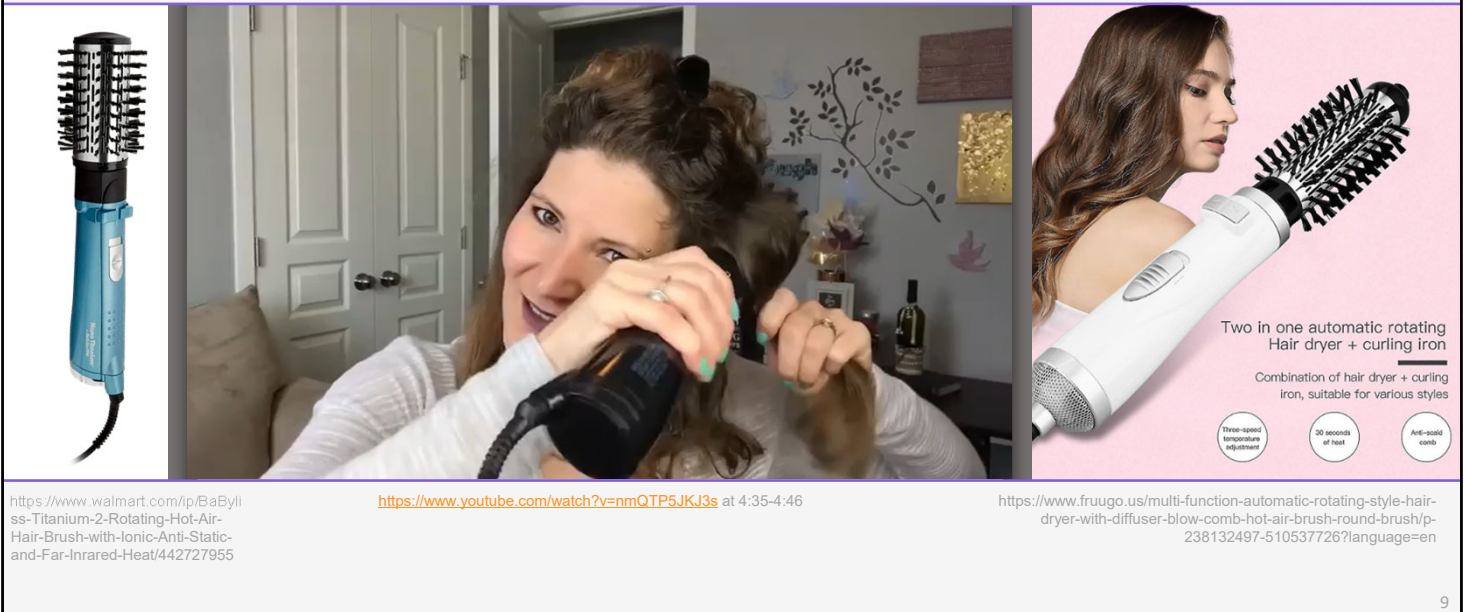
<https://www.youtube.com/watch?app=desktop&v=tZcqi8oN0Rk>
at 0:29-0:56

<https://www.fruugo.us/multi-function-automatic-rotating-style-hair-dryer-with-diffuser-blow-comb-hot-air-brush-round-brush/p-238132497-510537726?language=en>

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Another approach for hot styling brushes was to use a motor to rotate the bristled head of the brush. With these types of tools, the rotating bristles capture the hair, and hot air is blown outward through holes in the brush to heat the metal and thereby style the hair.

Prior Art



Again, this approach had drawbacks, and in particular here, the risk of the hair becoming tangled as the bristled head rotates was especially acute.

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The Coanda Effect



ScienceDirect

Coanda Effect

The Coanda effect is the action in fluid mechanics whereby a flow along a solid surface tends to follow the curvature of the surface rather than separating—like cream being poured from a pitcher that ends up on the hostess's lace tablecloth instead of in the cup for which it was intended.

From: Encyclopedia of Physical Science and Technology (Third Edition), 2003

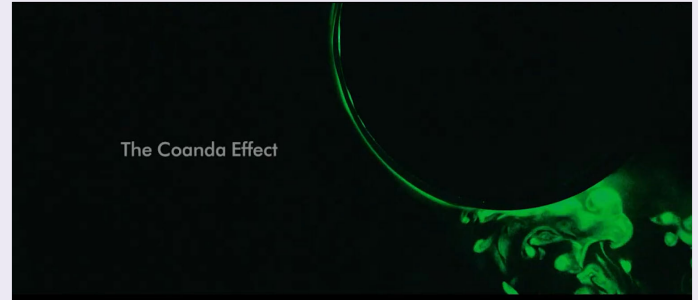
<https://www.sciencedirect.com/topics/earth-and-planetary-sciences/coanda-effect>

dyson

What is the Coanda effect?

The Coanda effect is an aerodynamic phenomenon. Air, when propelled at the right speed and pressure, naturally follows an adjacent surface, pulling in the surrounding air.

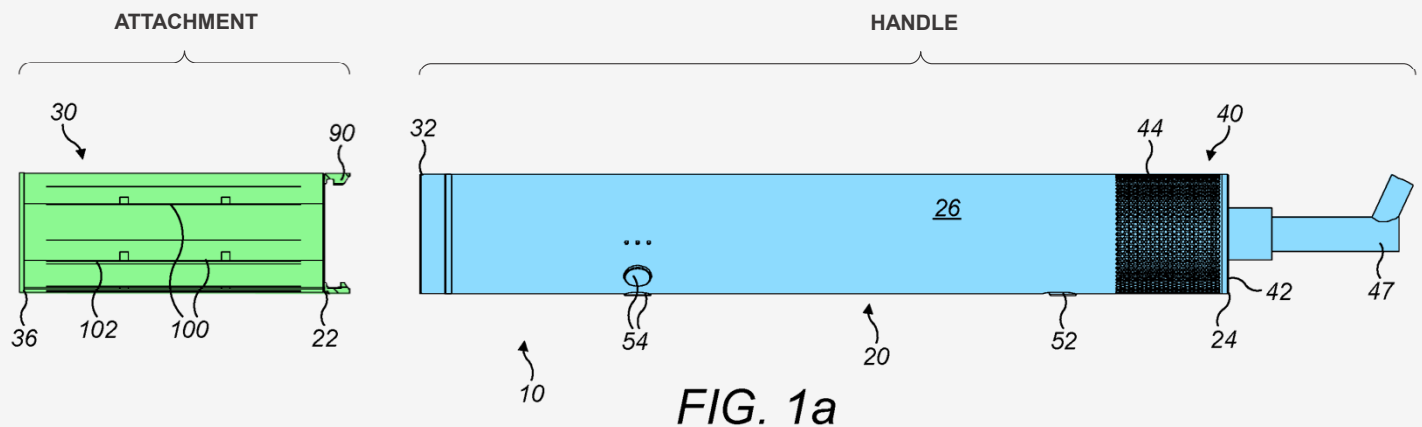
<https://www.dyson.com/discover/innovation/behind-the-invention/love-is-in-the-air>



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The Coanda effect is an action in fluid mechanics. As Dyson's website explains, it is an aerodynamic phenomenon using air, propelled at the right speed and pressure, along an adjacent surface, usually a curved surface. The air naturally follows the adjacent surface, pulling in surrounding air.

'979 Patent | Handle and Attachments

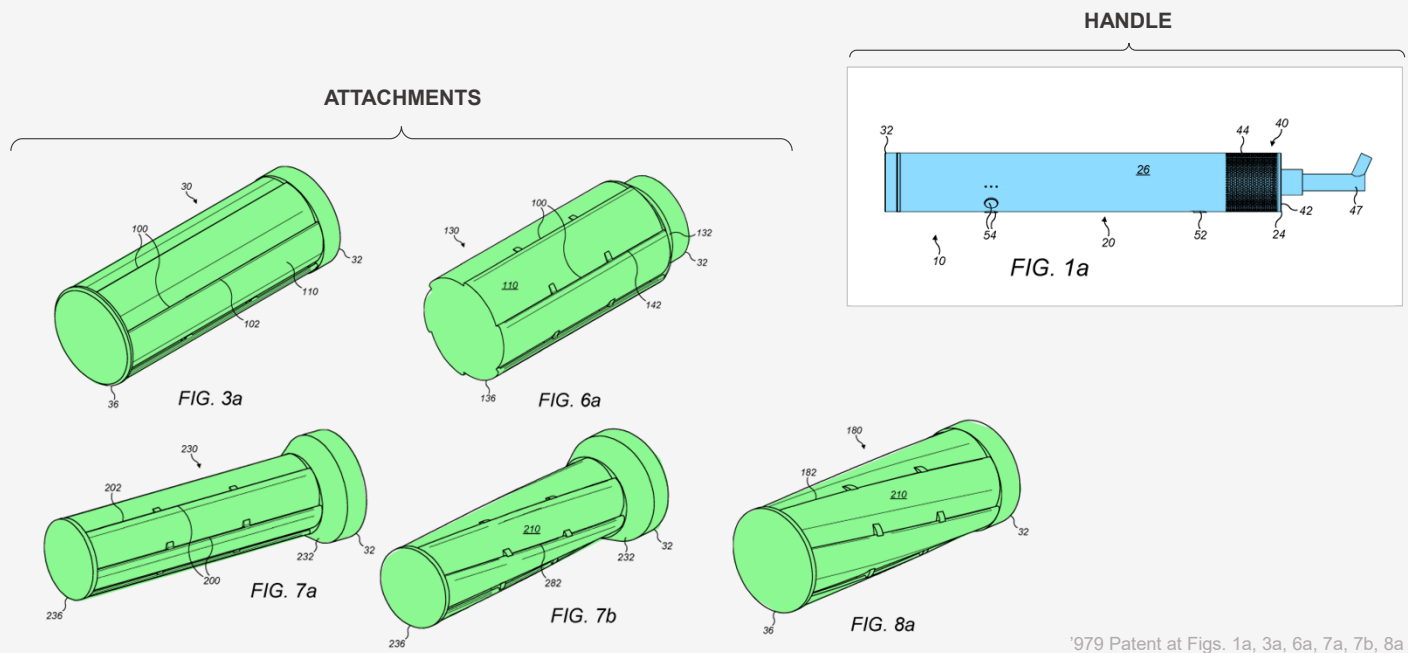


'979 Patent at Fig. 1a (modified)

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Dyson's 979 patent describes a hot air styling device in the form of a wand or handle, here shown in blue. The claims at issue in this case are generally directed to the hair styling attachment, here shown in green, which fits on this wand or handle.

'979 Patent | Handle and Attachments

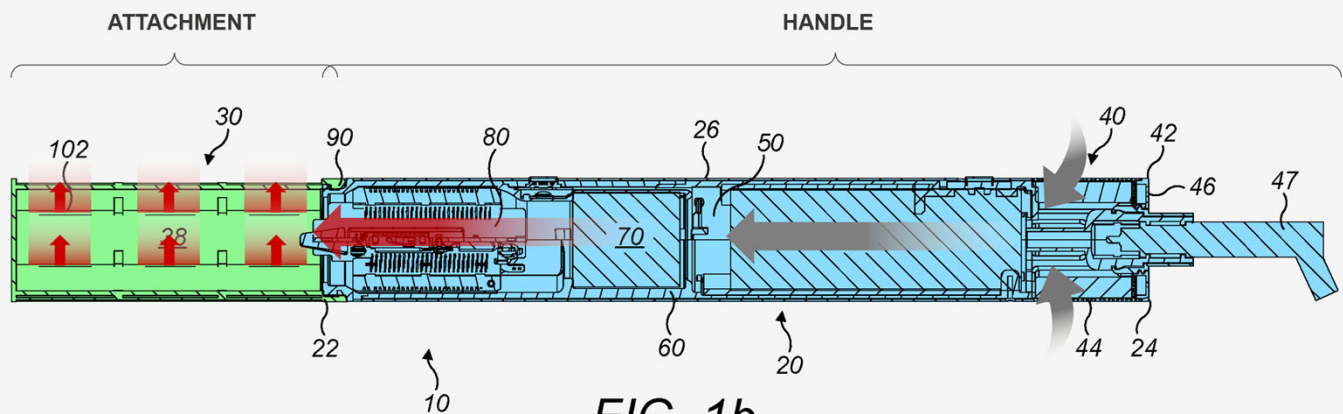


'979 Patent at Figs. 1a, 3a, 6a, 7a, 7b, 8a

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The '979 patent's hair styling attachment is shown in a variety of similar and optional shapes. The specification describes all of these attachments as "essentially" or "generally" cylindrical. All of the attachments operate to style hair in essentially the same way.

'979 Patent | Airflow



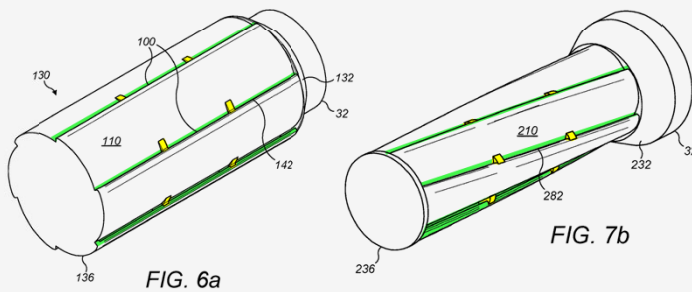
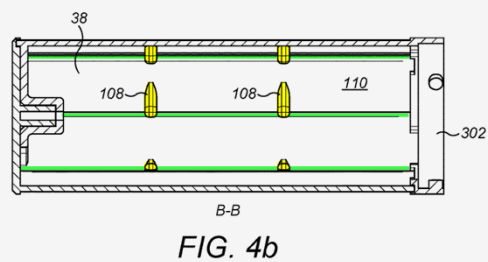
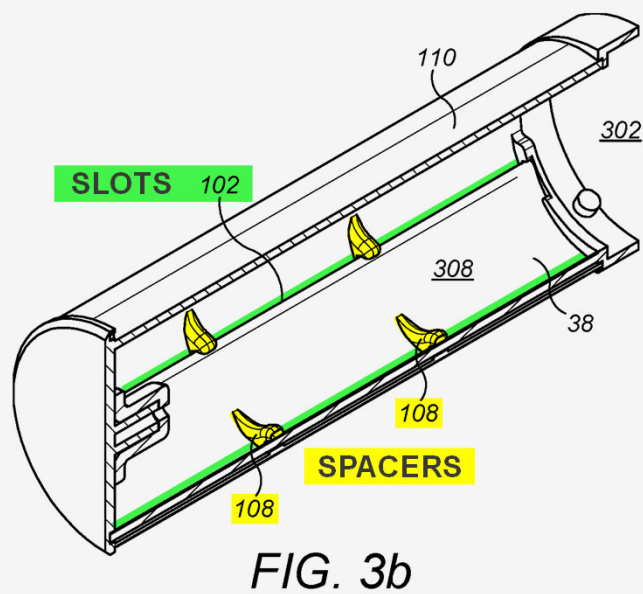
'979 Patent at Fig. 1b (modified)

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Here you can see a cut-away view of the attachment and handle. Inside the handle is a fan of some kind, which is powered by a motor that, in use, acts to draw air into the handle, past the heater, and into the head.

Air, which is a type of fluid, enters the handle through holes at the end nearest the cord. The air is sucked into and passed through the handle of the main body of the device, where it is heated and forced out the end of the handle, into the near end of a hair styling attachment.

'979 Patent | Attachment Slots and Spacers

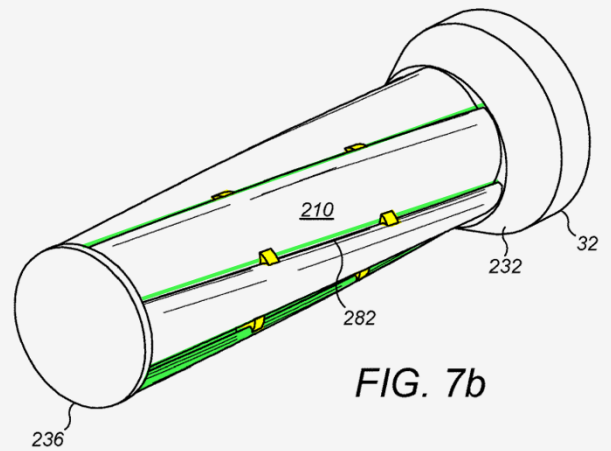
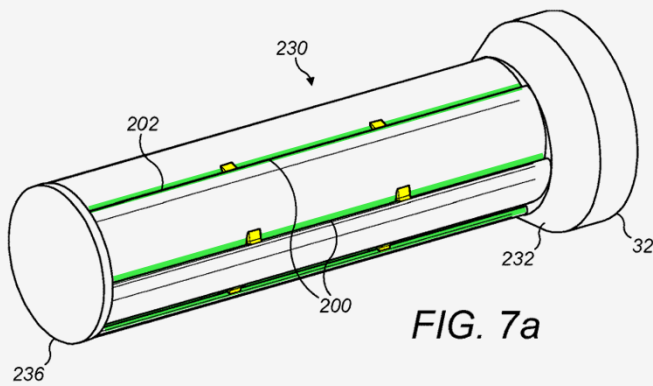


'979 Patent at Figs. 3b, 4b, 6a, 7b

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The attachment itself has several long slots, generally with spacers to maintain the size of the slots, which run along the attachment from near one end to near the other end of the attachment.

'979 Patent | Attachment Airflow Slots

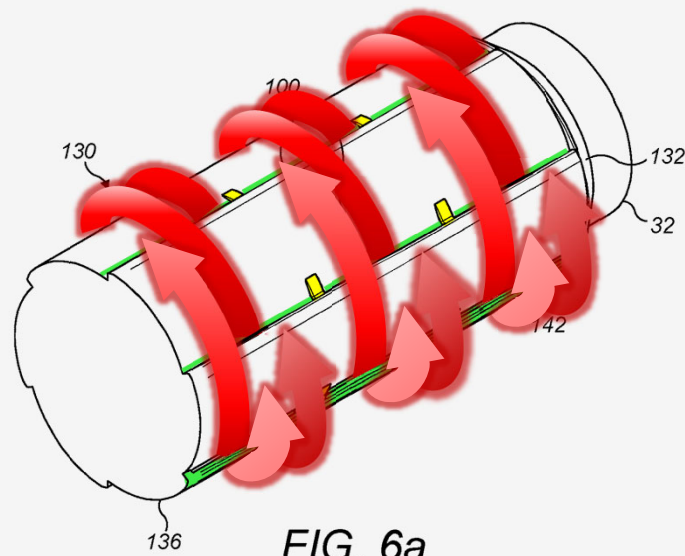


'979 Patent at Figs. 7a-b

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The slots run along the length of the attachment. They can run straight down the sides, or they can be twisted around the outside in a helical fashion.

The Coanda Effect



'979 Patent at Fig. 6a

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Air from the device is forced out of the slots, lateral or parallel to the surface of the attachment next to the slot, instead of out or away from the surface. Due to the Coanda effect, the heated air is attracted to the surface, causing the heated air to flow along and around the outside surface of the attachment in a circumferential fashion.

'979 Patent | Air Directing Element

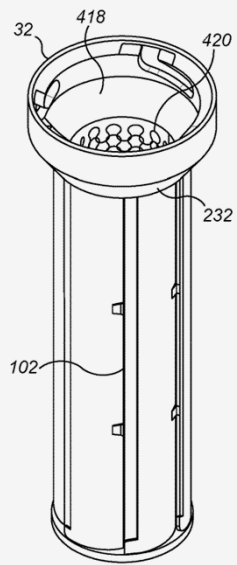


FIG. 15a

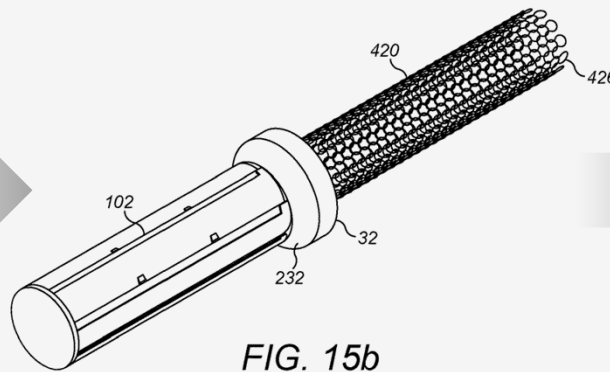


FIG. 15b

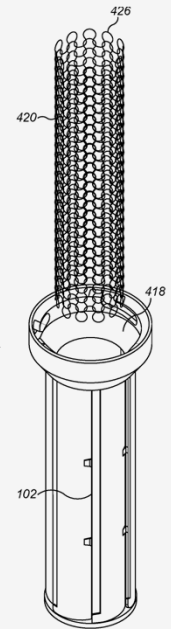


FIG. 15c

'979 Patent at Figs. 15a-c

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Airflow in the hair styling attachment can be further refined using an air directing element inside the attachment, depending on the needs of the specific design chosen for the styling attachment itself. The air directing element can be of various shapes, but will generally be a perforated surface that allows for air to flow through it and be directed depending on the needs of the design.

'979 Patent | Air Directing Element

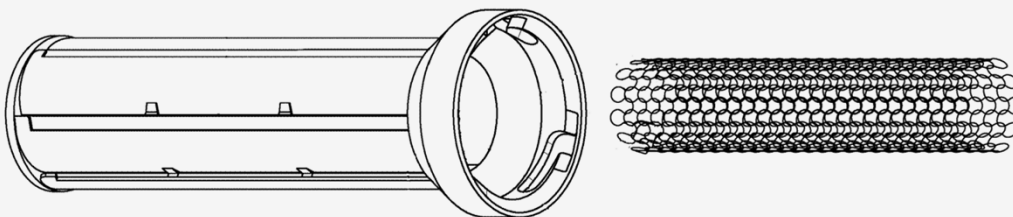


FIG. 15a

'979 Patent at Fig. 15a (Modified)

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Whatever its design, the air directing element fits inside the attachment.

Dyson Airwrap™

dyson

dyson

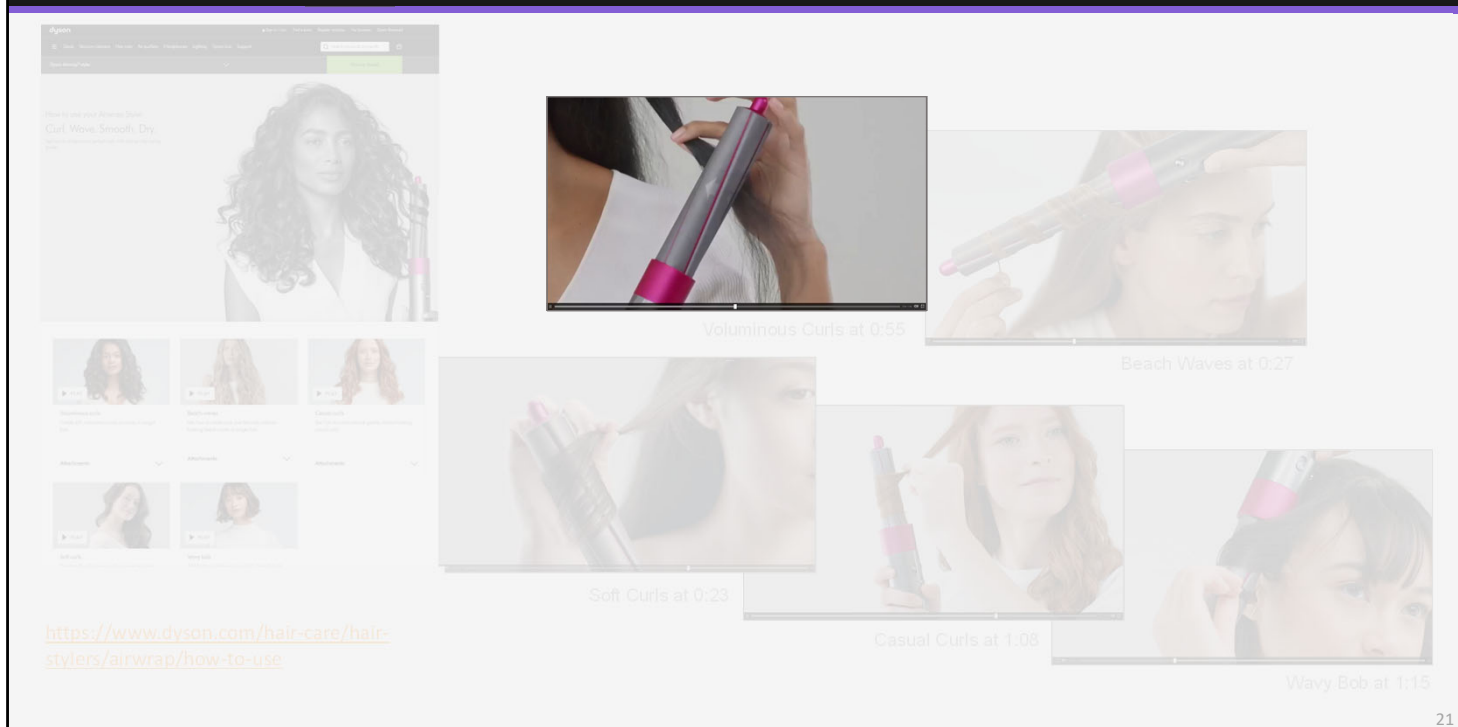


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Dyson introduced the 979 patent invention to the market in the form of an actual product, the Dyson AirWrap. The Dyson AirWrap is offered for sale with a variety of attachments for the consumer to achieve various hair styles, but only the Coanda curling barrel attachments—shown here on the bottom left, as well as attached to the main body of the device—are at issue in this case.

Dyson Airwrap™

dyson



In use, hair is attracted to and wrapped around the attachment while air or fluid exits through the slots drying the hair and/or styling the hair into curls or waves. The hair wraps automatically, without manual winding by the user and without using mechanical rotation of the attachment, due to the flow of air around the surface of the attachment. Using a combination of low heat and air, the Airwrap dries and styles hair in a fraction of the time it takes to dry and style hair using conventional methods. It is therefore more convenient to use and less damaging to hair than conventional tools.

Videos of the Dyson Airwrap illustrate how this works.

Dyson Airwrap™

dyson

Dyson Airwrap Changed My Life!

<https://www.youtube.com/watch?v=1-Kg4xM7yHk>

Dyson Airwrap Changed My Life! at 4:45-7:00

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Everyday consumers are able to easily use this hair styler and attachment to automatically wrap, style and dry hair as shown in the patent, achieving a professional look without the need to go to a hair salon.

[video]

Because the attachment has no bristles, and does not use hot plates, irons, or a rotating brush, hair is not damaged as was the case with more conventional methods of hair styling.



Thank You

C.A. No. 1:23-cv-11277-ADB

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This concludes Dyson's technology tutorial. Thank you for your attention to this matter.